U.S. NAVY MEDICINE

July-August 1983

Interview:
Pharmacy Techs Aboard Ship

U.S. NAVY MEDICINE

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COVER: Filling sailors' prescriptions aboard USS *Nimitz* is the job of pharmacy technician HM1 Leroy Mace. Interview on page 10. Photo by the Editor.

Getting Down to Business

They say everything comes full circle, and this message is an excellent example. Past Surgeons General used this page to communicate with the field. I am pleased to reinstitute the tradition.

I have been in the job a short time now, and I am constantly amazed at the diversity of the people here. My staff takes on tasks that would make scaling the Alps look easy. I am pleased with the professionalism and dedication I see around me, not only here, but throughout the command structure.

My firm opinion is the Headquarters is here *to serve the field.* We are the classic intermediary between the Office of the Surgeon General and the field activities. It's a job we're learning as we rush along, and we might make some errors, but they'll be made because of our commitment to do whatever is necessary to help the field. Remember, the staff is good; they are here to serve your needs. And that means we need to know what your needs are.

This involves the much worn word "communication." In popularity, it ranks up there with "coverup," "new and improved," and "satisfaction guaranteed." It's ironic that everyone discusses communication, but we still have a hard time communicating.

How do we solve the problem? *We talk with each other.* If you have a question, call us and ask away. The only dumb question is one that never gets asked. If the staff doesn't know what the problem areas are in the field, we can't help solve them. We won't always be successful, but we'll give it a shot. Don't wait until it's too late to ask for assistance.

Now I want to address the field activities—those of you who are on the line, doing the hard work.

I travel a lot, and it's a habit I don't intend to break. I've been with you in the trenches and know how rough it can be. I also know there's a great satisfaction in doing a job well, a job that can mean the difference between life or death, between being prepared for contingencies or playing catchup ball when the hostilities start. Make no mistake, our mission is *fleet support.* I hope never to find out just how well prepared we are for that role, but prepared we must be.

Our secondary mission is to provide quality care to our beneficiaries, and we're fulfilling that requirement superbly. When you think of it, we are solely responsible for the health of a huge population—a population that is, by virtue of their profession, very conscious of their health. And, they are healthy! That means we must be doing it right!

I'm telling people that, and I want *you* to tell people the same thing. We have a great team. We are and can do a great job. We are part of a great Navy team. Be proud of what we are and keep charging!

William M. McDermott, Jr.
RADM, MC, USN

A line of youngsters awaiting dental screening by Honduran dentists stretches over 300 yards in the village of San Francisco de Corpy. Right: A Honduran mother watches as LT Barry Cohen, MC, examines the eyes of one of her children.

Civic Action in Honduras

Thirty miles down the road was the sensitive Honduras-Nicaragua border. The civic action medical team set up its clinic this particular morning in the back of a pickup truck.

It didn't matter to the 12 U.S. Navy doctors, a dentist, and dental technician, who were teamed up with the 55 Honduran medical-dental personnel to provide health care to the people in the villages.

When you are part of a civic action program you don't see patients in big cities. You travel to villages and towns located high in the mountains and sometimes near borders. The route carries you along rocky, dusty, one-way roads to see patients and show you care.

The scene of action was the southern section of Honduras in the Departments of Choluteca and Valle about 72 miles from the capital of Tegucigalpa. The U.S. medics were members of Class 54 attending the Navy Medical Research and Training Unit's course in "Medicine in the Tropics" in Panama. This civic action effort offered them firsthand experience in recognizing and treating tropical infectious illnesses found in Central America.

For 4 days they rode in trucks, sometimes up to 3 hours, bouncing up and down dusty roads and caring for the sick and needy. When it was over, the combined U.S.-Honduran medical/dental team had seen and treated 12,611 men, women, and children.

The May mission was the second civic action program undertaken by the Navy this year. Last January the Navy and a Honduran medical team provided medical and dental assistance to over 4,000 persons in eight communities in northeastern Honduras during Ahuas Tara, a combined U.S.-Honduran exercise. The success of the January effort inspired plans to continue to bring more medical relief through the bilateral program.

At about noon, 4 May, a U.S. Air Force C-130 carrying the team landed at Tegucigalpa Airport. They were met by LCDR Steve Wignall, MC, USNR, officer in charge of the Navy Medical Research and Training Unit, and MAJ Robert Perry, USA, of the U.S. Southern Command Plans and Security Assistance Directorate (J-5) in Panama. They had flown to Honduras earlier to dovetail final arrangements for the project.

The doctors climbed aboard a bus and headed south to the village of Nacaome. Chickens, cows, horses, and men driving ox and goat carts dotted the scenery along the road. The homes in the countryside were made of sticks and clay with terra cotta tile roofs. Many homes did not have doors.

It was dusk when the doctors arrived at Nacaome. The townspeople helped them unload equipment and medical supplies from the two trucks. Along with the numerous boxes of medicine, there was an operating table and other important pieces of hospital equipment to be used for emergency care.

The four pallets of supplies came from Panama, and equipment was acquired from the Defense Property Disposal Office: much of it originated in the Coco Solo Army Medical Clinic. USSOUTHCOM and the Navy Medical and Research Training Unit furnished the medical supplies. The Supply Department of the U.S. Naval Station, Panama, provided the expertise in packing the supplies and equipment, working a full day to ready the 7,000 pounds of civic action cargo for delivery to Howard AFB for its airlift to Honduras.

The next morning, 5 May, at the 11th Battalion Headquarters in Salomar, the American contingent met the Honduran medical team and reviewed their assignments within the two provinces of Choluteca and Nacaome. By noon, when the Nacaome team arrived at the small militia outpost near town, people were already in lines.

Life in this particular area is precious. One Honduran doctor said that one out of 10 children die at birth, and the life expectancy of a man is 48. The children start work at age 6 in the fields to help with the crops. Often nutrition is poor. So, it was not surprising that mostly women with babies and small children showed up. The men were in the fields working their land under the very hot sun. Poverty in Honduras is prevalent. The per capita income is about $822 and less in the rural areas. Many of the larger families in the countryside are lucky to earn $400 a year.

Four small tables and chairs were brought from a truck and dusted off. The clinic area was a small, thin slab of concrete under a thatched roof. A low wall separated the medical clinic from the dental working space.

As the dental patients came through the door, a Honduran dentist preexamined each one. If treatment was necessary they waited their turn for a shot of anesthetic. They then went to another Honduran dentist or LCDR Thomas Hill, DC. Dr. Hill and his assistant, dental technician Cindy Applegate, were from U.S. Naval Station, Panama.

During the next 6 hours the doctors extracted 250 teeth. Many had seven or more teeth pulled out at one time. There was no such thing as filling cavities. "What we're trying to do out here," said Dr. Hill, "is to raise the general health of the people by removing infected teeth."

For the doctors, the line kept growing until they saw over 500 patients before sundown that first day.

Many patients only received a few aspirins but that alone brought joy and relief. Just seeing a doctor, many for the first time, made them feel secure.

"But remember," said one doctor, "that we worked with no charts on the patients nor were we able to request lab work. It was a one-time shot, and you did the best you could."

There was no privacy for the patients. When they talked to the doctor, everyone listened. Dogs walked about trying to find a cool spot on the concrete. The sound of babies crying was everywhere. At least 10 mothers were nursing their infants while waiting their turn at one of the four treatment stations.

The medics checked the eyes, ears, and throats and checked blood pressures. They saw TB patients, congestive heart problems, goiters as large as two oranges in a throat, malaria, and numerous types of rashes due to the dry heat and lack of water. There are no humidifiers or air conditioners in Nacaome.

Less than 10 feet from where the doctors worked, a squealing sound could be heard. Behind the barbed wire surrounded by low brush and lying in a puddle of mud, a sow nursed five or six piglets. The medical care continued. Life was like this from early morning until dusk through the end of the week.

The doctors worked 9-10 hours a day. In the evening they sat around the table and shared their experiences.

Conversation touched on many subjects: medical, personal, and sentimental.

- A man was having severe heart problems and could hardly breathe. He was treated and advised to see a doctor. But the doctors felt the man might never leave the village.
- The shoeless youngsters who were clean and polite. Seeing a doctor was considered important to the villagers, so they dressed the girls in their best dresses.
- The sincerity and generosity of the people. In most villages the people brought soft drinks for the doctors to help them through the heat of the day.
- The faith of the people. Crosses are displayed in front of homes throughout the countryside. When someone dies, burial is simple, sometimes only a hole in the ground with rocks piled atop the grave and a flower-decorated cross hammered in the ground.
- Although Honduras is a poor country, its people are warm and gracious.

The doctors finally returned to Panama and completed the last week of their tropical medicine training before returning to such familiar places as Bethesda, Oakland, Jacksonville, and Norfolk. They would not soon forget their experiences in the small villages of southern Honduras, and the poor but gentle people they treated would not forget them either. □

—Story and photos by CDR Frank Evans, PAO, USSOUTHCOM

From Seal to Surgeon

"Challenges make the man," runs an old adage, and that is certainly true in the case of LCDR Glenn Cunningham, an orthopedic surgeon on the staff of NRMC Subic Bay, Republic of the Philippines.

The Davenport, IA, native has racked up an impressive array of accomplishments over the years. He began his Navy career in 1968, when he enlisted as a hospital corpsman. Since then he has made the transition to SEAL, physician, and orthopedic surgeon.

Before enlisting, Cunningham had graduated with honors from Yale University and went on to attend Oxford University in England on a private foundation scholarship.

The Vietnam War was then at its peak however, and he was faced with the prospect of being drafted. He opted instead to enlist in the Navy and was trained as a hospital corpsman. After completing basic 'A' School he volunteered for duty with the SEALs, the Navy's elite force of unconventional warfare specialists. As part of his SEAL team training, he completed Underwater Swimmer's School in Key West, FL, and basic airborne and free-fall parachute training at Fort Benning, GA.

Following completion of SEAL cadre and survival-evasion—resistance—escape (SERE) training, he deployed to Vietnam with his SEAL platoon. He initially operated out of "Solid Anchor," a mobile Navy base in the Viet Cong-dominated Camau Peninsula, and later out of An Loc, northwest of Saigon along the Cambodian border. He also did reconnaissance missions for amphibious operations from various ships and from the submarine USS *Grayback*.

Aside from the combat operations, Cunningham also acquired an extensive background as a demolitions expert, blowing bunkers and clearing canals and harbors.

His corpsman duties during this time only whetted his appetite to learn more about medicine, and he set his goals on becoming a physician. He applied to medical school and took the admission exam while aboard ship off the delta of South Vietnam, where the amenities included "110° heat and the constant interruption of fire missions."

His application for school was accepted, and he won a Navy scholarship to the University of Iowa, where he received his M.D. with honors in 1976. He went on to do his internship and orthopedic residency at NRMC San Diego, where he was able to maintain contact with friends from the SEAL and underwater demolition teams. He reported aboard NRMC Subic Bay in July 1981.

Cunningham has always been fascinated with the lore of the jungle—"a carryover from my Vietnam days," he jokes—and weekends usually finds him trekking through the nearby tropical vegetation with a Negrito guide. He also takes friends on short jungle trips, giving a running commentary on the various flora and fauna found therein. SCUBA diving is also high on his list of recreational activities, and he feels that Subic is one of the more beautiful bays in Southeast Asia.

Cunningham continues to be motivated by challenges, and his immediate future goals include doing an orthopedic trauma fellowship and gaining administrative management experience and skill. □

—Story by HM3 Tammy Izzett

Dr. Cunningham

Changes of Command

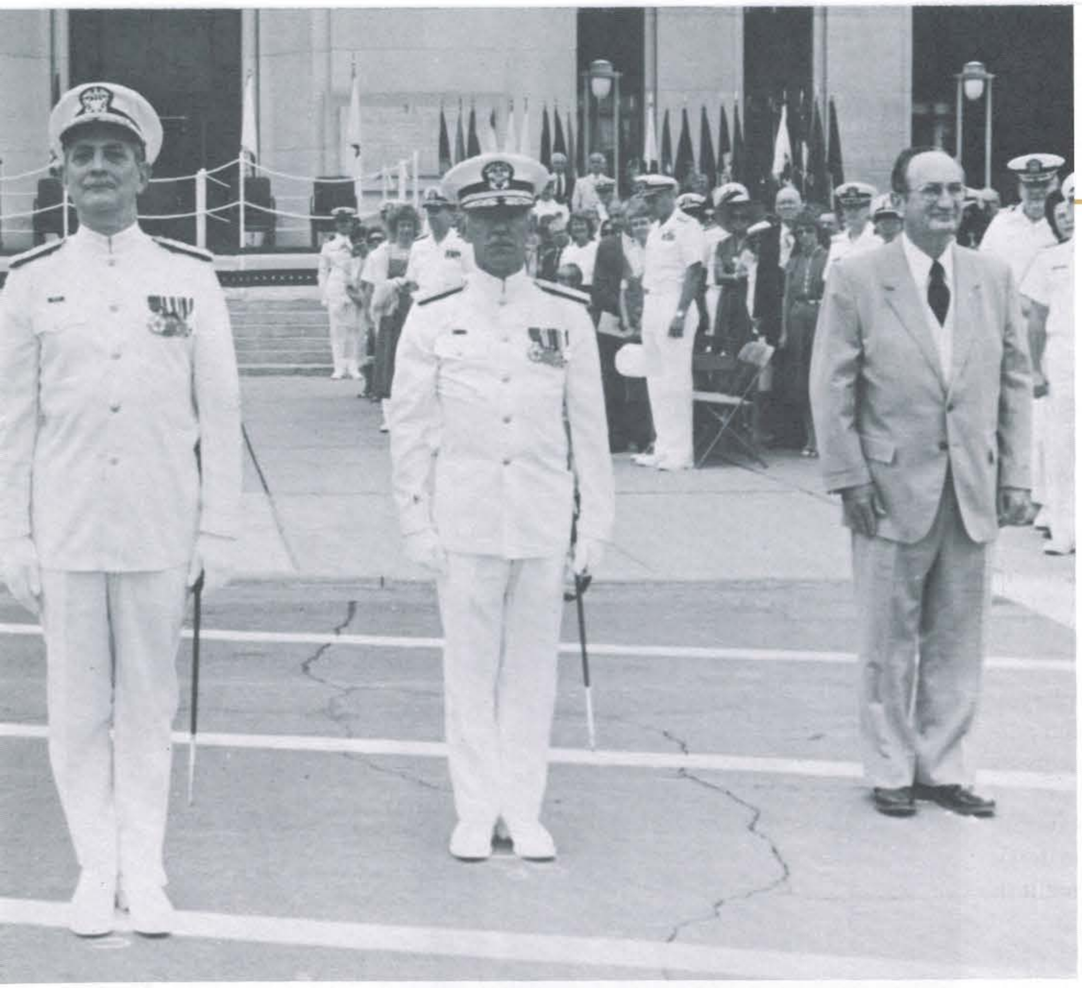
"VADM Seaton is the right man, in the right place, at the right time." With those words, Secretary of the Navy John Lehman administered the oath of office to VADM Lewis H. Seaton, MC, making him the 29th Surgeon General of the Navy.

Under the recently completed realignment of the Navy Medical Department, VADM Seaton assumed duties as Surgeon General and Director of Naval Medicine. He is primarily responsible for developing policy for the department. Previously, the Surgeon General developed and also implemented such policy. The Commander, Naval Medical Command, RADM William M. McDermott, MC, is now responsible for implementation.

This was not the only change under the realignment. In order to create a manageable span of control, worldwide medical facilities were regionalized into geographic commands. A more definitive chain of command was established, and there are better lines of communication among the second, third, and fourth echelons.

VADM Seaton entered the Navy in 1955 and has served at numerous medical facilities and aboard submarines. Among his medals and awards, he wears the Legion of Merit with gold star and the Meritorious Service Medal with gold star.

Above: VADM J. William Cox retires at Bethesda ceremony 30 June 1983. Right: Secretary of the Navy John Lehman administers the oath of office to VADM Seaton on 13 July 1983.



RADM William M. McDermott, Jr., MC, is the new Commander, Naval Medical Command. He relieved VADM Lewis H. Seaton.

RADM McDermott graduated from Tufts University in 1951. He then attended Tufts School of Medicine, receiving his master's degree in physiology in 1954 and his doctor of medicine degree in 1958. He completed a pediatric internship at the New England Medical Center in 1959 and a residency in anesthesiology at the National Naval Medical Center, Bethesda, MD, in 1969.

During his naval career he held various posts, including a tour with the Fleet Marine Force, special assistant to the Surgeon General of the Navy, and command of the Naval Regional Medical Center, Jacksonville, FL. His last assignment was as Fleet Surgeon on the staff of the Commander in Chief, Atlantic Fleet, Norfolk, VA.

As Commander of the Naval Medical Command, RADM McDermott is responsible for implementing policy for the Navy's Medical Department. □

RADM McDermott reads his orders at change of command ceremony on 23 June 1983.

The Commander Speaks on TRIMIS

RADM William M. McDermott, Jr., Commander, Naval Medical Command, Washington, DC, gave the following speech at the 2nd Annual TRIMIS (Tri-Service Medical Information System) Program Conference held 11 July 1983 in Bethesda, MD.

I've been asked to talk with you about TRIMIS. I've always been partial to new technology that helps us manage an ever-increasing flow of information, and the TRIMIS system is one of the best ideas to come down the road in a long time. I've seen it in operation, and I think it's great.

I think TRIMIS, even now, as we're starting out, is a fascinating application of computer technology. It's going to help us expand and improve our efforts in treating, identifying, and recording all aspects of health care in a medical environment.

We are undergoing a technology explosion in the field of health care. The demand for information grows by leaps and bounds. We are no longer able to have isolated islands of health care scattered throughout the military, even within a single service.

Our hospitals must be able to "talk" with each other, pass information, compare notes and diagnoses, and assimilate data. In short, through TRIMIS, we can cut our administrative time and improve our overall management of health care, and we can hook up our shore-based experts with isolated duty corpsmen on deployed submarines and remote locations throughout the world.

It is an amazing leap forward and we've got to be ready for it. That's where you come in. All the technology in the world won't do us any good if we don't have the knowledge or capacity to make the best use of it. And let me make it clear I think we're going to have problems with TRIMIS if we continue to have one office which is responsible for policy development *and* implementation. That was our problem in the old Bureau of Medicine and Surgery.

The main foundation of TRIMIS is tri-service. We must cooperate, share resources, information, knowledge, and know-how. And we must do it better than some of our other joint programs. There is no room for interservice rivalry in the TRIMIS program. I want you to know that I really mean that.

This system is not going to be used simply to enhance our shore-based facilities, although that is certainly an outgrowth. In everything we are doing now, *our goal is fleet support.* You must keep that in mind as you go about your business of working with the TRIMIS system.

Not only do we need a system that allows easy and understandable access, we need a system that can support the full range of our user population, from the commanding officer to the physicians, dentists, nurses, administrators, corpsmen, and supply clerks.

Many of you have been involved predominately in the installation of the TRIMIS system. Some of you have just learned to use TRIMIS, and others sit here in awe of the system. I'm a member of the latter group, and I hope all of you are as excited about the prospects of TRIMIS as I am.

Working together, whether you're in the same hospital, the same state, or even the same geographical region, you'll have to design "people-oriented systems," so our managers and health care providers can cease wading through reams of paper and start focusing more on health care.

We'll need a system that can hook up with the Defense Enrollment and Eligibility System, known as DEERS. It will have to communicate with the

Uniform Chart of Accounts, and the various Navy supply and fiscal systems, and similar systems throughout the other services.

Who knows? We're currently testing I.D. cards in the Norfolk area that have magnetic strips on the back of the card. That magnetic strip contains a multitude of information about the servicemember who carries it. Maybe one day, that servicemember will walk into one of our hospitals and plug in his I.D. card, and his medical record will come up on the screen for review by the attending physician.

That physician then can use the TRIMIS system to talk with the servicemember's doctor in Rota, Spain, and find out what medications he was taking; then he'll call up the pharmacy and order medications for the guy; then he'll make an electronic entry to the servicemember's medical record.

It's a gigantic goal. The applications are almost infinite. As I said, I think TRIMIS is absolutely amazing and I can't wait to get it on line. It's going to take lots of time, money, and manpower. But TRIMIS is a reality, and it will grow over the years into an unbelievably effective and efficient system. Your job is to make sure we do it the *best* way we know how. You are the recognized experts. *Make sure you teach us well.*

You have my full support and that of my staff. If there is anything we can do to help you in your efforts, I not only want you to call, I expect you to.

Hospital Corpsmen/Dental Technicians Update

- **NAVMEDCOM Point of Contact.** The Career Planning Branch (MEDCOM-541) will serve as the primary point of contact for Medical Department enlisted personnel (HM/DT) matters.

Assistant for HM Plans
HMCM Walter E. Raysick (MEDCOM-5415)

Assistant for DT Plans
DTCM Herman R. Moeller (MEDCOM-5416)

Address:
Commander, Naval Medical Command
MEDCOM-5415/6
Washington, DC 20372

Telephone:
Autovon 294-1647/1648
Commercial (202) 653-1647/1648

- **The Medical Enlisted Commissioning Program (MECP).** *U.S. Navy Medicine,* April-May 1983, p. 18, noted BUPERSINST 1120.37B as a reference for eligibility requirements. BUPERSINST 1120.37B is not available and was canceled when the Navy Enlisted Nursing Education Program (NENEP) was terminated. An OPNAV directive concerning the MECP program will be issued in the near future. General questions or information can be queried via MEDCOM-5415/6.
- **Training With the U.S. Air Force.** Beginning in FY84 a limited number of openings will be available for specialized dental laboratory technology training at Sheppard AFB, Wichita Falls, TX. The courses will afford Navy prosthetic laboratory technicians an opportunity to enhance skills and knowledge in specific prosthetic laboratory procedures and techniques. Specialized training will be available in the following courses:

Course J3AZR 98270-006
Removable Partial Denture Prosthetics
4 classes per year
Class length: 4 weeks/3 days

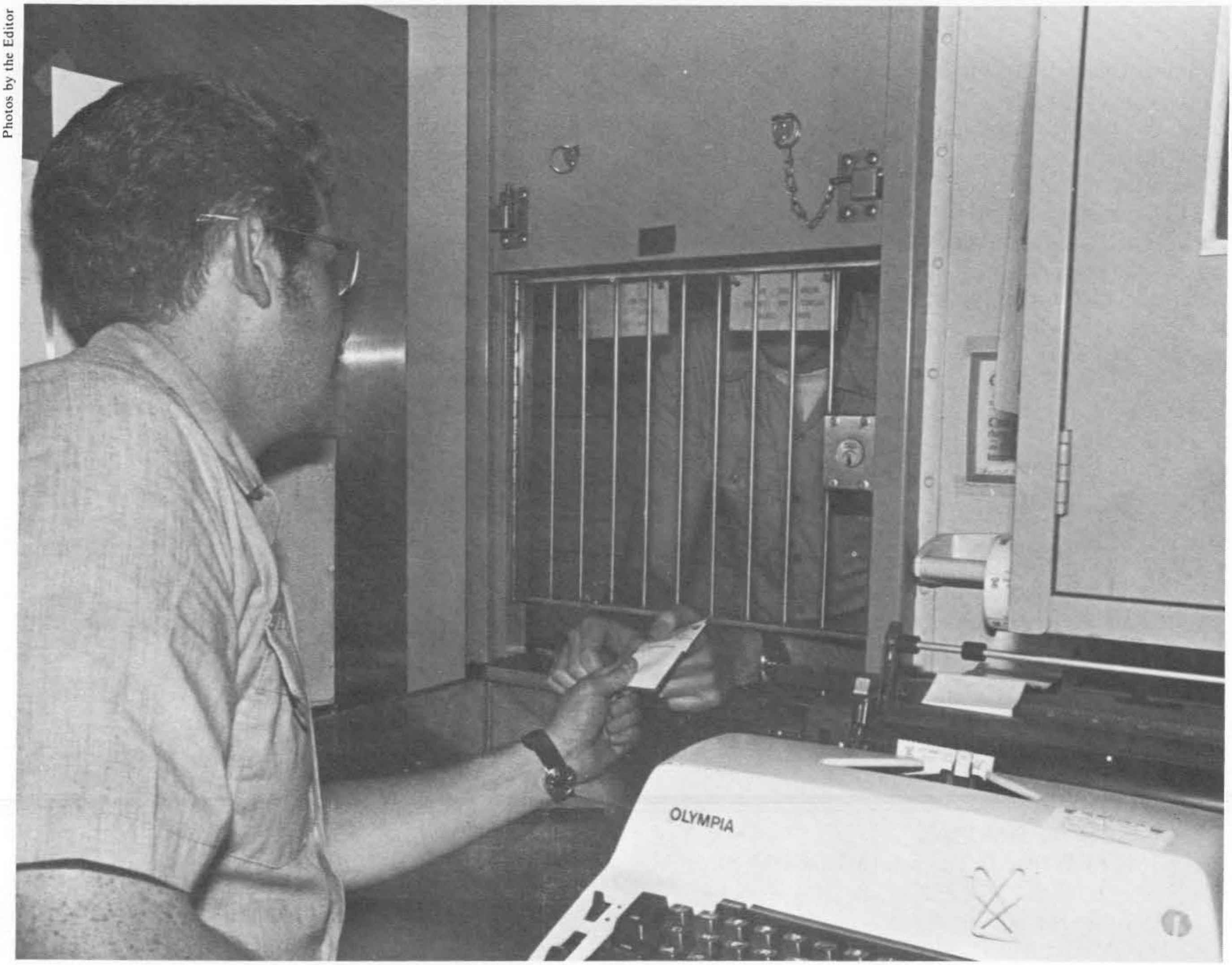
Course J3AZR 98270-007
Dental Ceramics
3 classes per year
Class length: 3 weeks/3 days

Course J3AZR 98270-008
Crown and Fixed Partial Denture Prosthetics
3 classes per year
Class length: 3 weeks/3 days

Course J3AZR 98270-009
Complete Denture Prosthetics
2 classes per year
Class length: 2 weeks

Funding for the courses should be allocated and administered by the command/activity requesting the training. Quota control will be coordinated by MEDCOM-5416 and 552. For more information contact: DTCM H.R. Moeller, Autovon 294-1647/Commercial (202) 653-1647.

Photos by the Editor



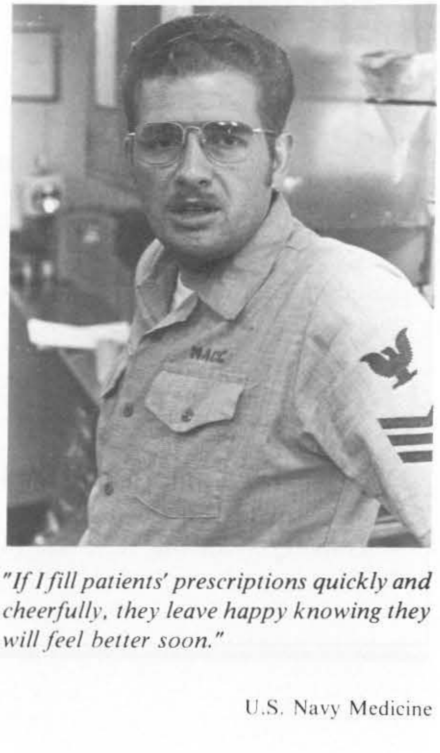
Pharmacy Techs at Sea

The last but not least important link in the health care delivery chain aboard ship is the pharmacy technician (HM-8482). "How I take care of patients at this window gives them a lasting impression of all the doctors and corpsmen they've already seen," says pharmacy tech HM1 Leroy Mace. A Navy veteran of 12 years, Mace is the proprietor of the "neighborhood pharmacy" aboard USS Nimitz. *Last year alone, the* Nimitz *pharmacy filled nearly 37,000 prescriptions and dispensed "over-the-counter" remedies such as aspirin and nasal decongestant. Maintaining the inventory dockside and on deployment, dispensing prescriptions quickly and accurately, and serving as a general duty corpsman when necessary is no small task.*

Several months ago U.S. Navy Medicine *spent a day with HM1 Mace in the pharmacy as he went about his duties.*

USNM: Is this your first shipboard duty?

HM1 Mace: Yes. I had always worked with the Marines. I was stationed at the Naval Hospital at Camp Lejeune the first 4 years of my Navy career and



"If I fill patients' prescriptions quickly and cheerfully, they leave happy knowing they will feel better soon."

then transferred to the 2nd Marine Division after going FMF.

What was your NEC then?

I was an 8404, field medical service technician. Like everyone else, I decided it was time for a better job. I talked to the pharmacy officer at the hospital and he advised me to take the test. I then followed a general course of study combined with on-the-job training. During that time the school was 36 weeks long. I had to learn so many days per week and demonstrate proficiency in pharmacy mathematics. We were also tested once a week.

Did you find on-the-job training beneficial?

Definitely. Often we were expected to learn 200 drugs and their generic names a week. When you're actually working with the drugs it all seems to sink in a lot better. I learned just about everything about each medication and its use.

What is the difference between a hospital pharmacy and one aboard a ship like the *Nimitz?*

The main thing is the amount of responsibility. Here I have to maintain supply levels, dispense medication, and keep track of controlled drugs. Supply and storage are big problems. We don't carry every name brand of medication. It's "Use what you've got." I can recommend alternatives, and this formulary I've developed is what I use for cross-referencing.

What over-the-counter drugs can you dispense?

Mild pain relievers like aspirin and Tylenol and nasal decongestants such as Sudafed.

With prepared medication now commonplace, do you ever find it necessary to do compounding?

Yes, when you run out of prepared medication. We had a fellow with a severe mouth infection. The doc called and asked if we had a particular medication. We didn't and, being at sea, there was no way to get it. But we did have some tablets of the drug on hand. I ground some, sieved the results, and made a suspension for topical application. It worked fine. Occasionally, I prepare suspensions for dental patients.

Besides dispensing medication I imagine you do a great deal of counseling on its correct usage.

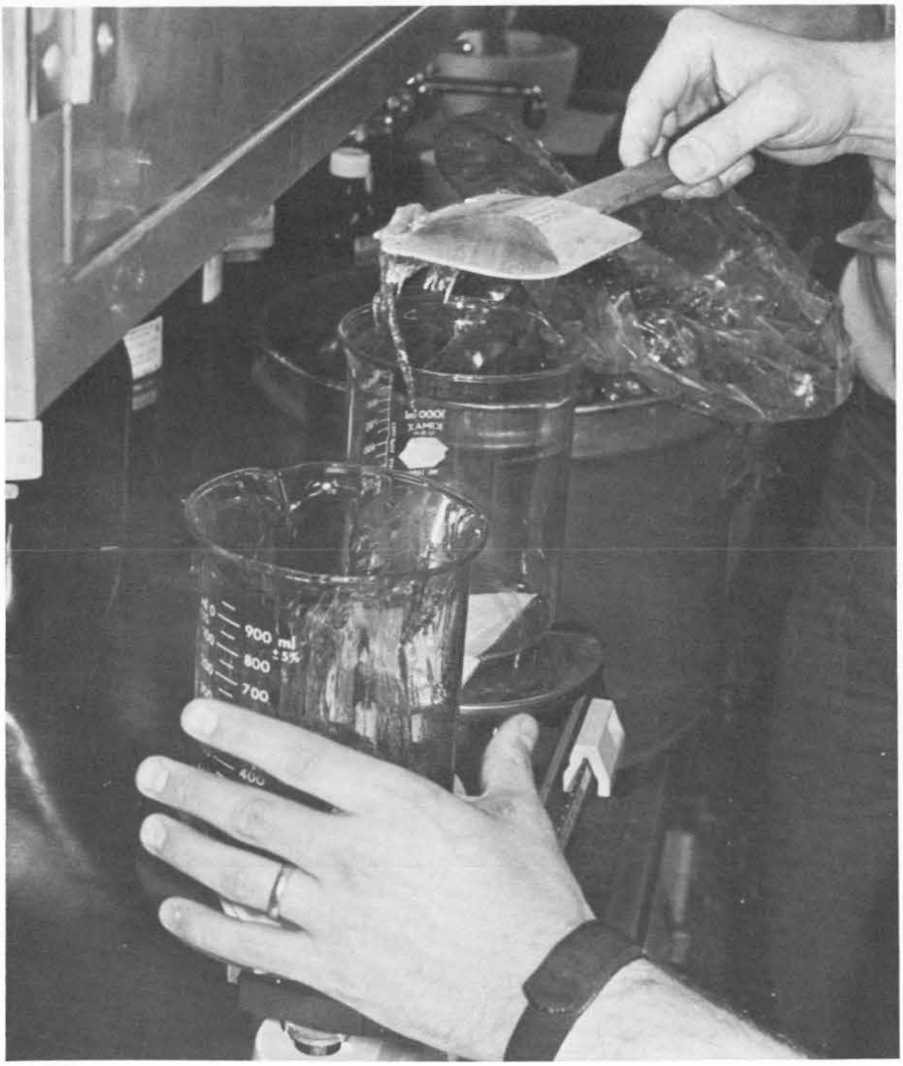
Oh, yes. Besides telling the patient how to take the drug properly, you must warn him about side effects and occupational hazards; antihistamines may cause drowsiness and therefore you shouldn't operate machinery while taking it. Some medications may cause dizziness. In a dangerous place like this, ignorance could cost you your life.

So, it's not the physician's job to instruct the patient how to take medication?

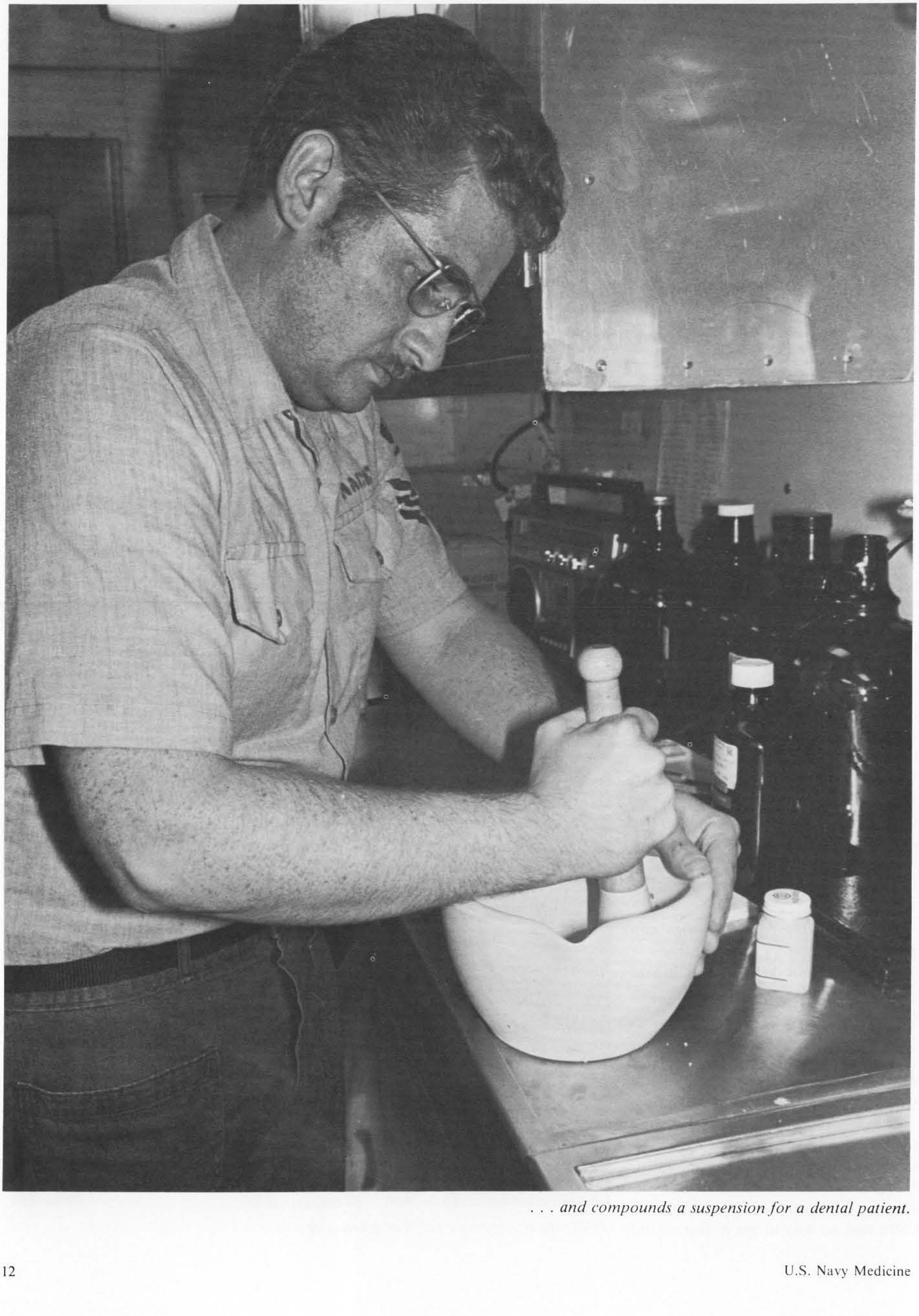
Yes and no. It's a combination of efforts. The doctor should, but in many cases we have to reinforce his instructions.

Do you have any collateral duties?

Yes, I'm a career counselor and department duty officer. I have to see to it that the five or six people I'm in charge of learn everything from filling out a health record entry correctly to setting up a shot line.



HM1 Mace prepares a batch of green soap . . .



. . . and compounds a suspension for a dental patient.

This drug may impair the ability to drive or operate machinery. USE CARE until you become familiar with its effects.
MAY CAUSE DROWSINESS OR DIZZINESS

Left: The pharmacy has 16 different labels instructing patients in the correct usage of medications and warning about dangerous side effects. Below: Last year the Nimitz *pharmacy filled nearly 37,000 prescriptions.*

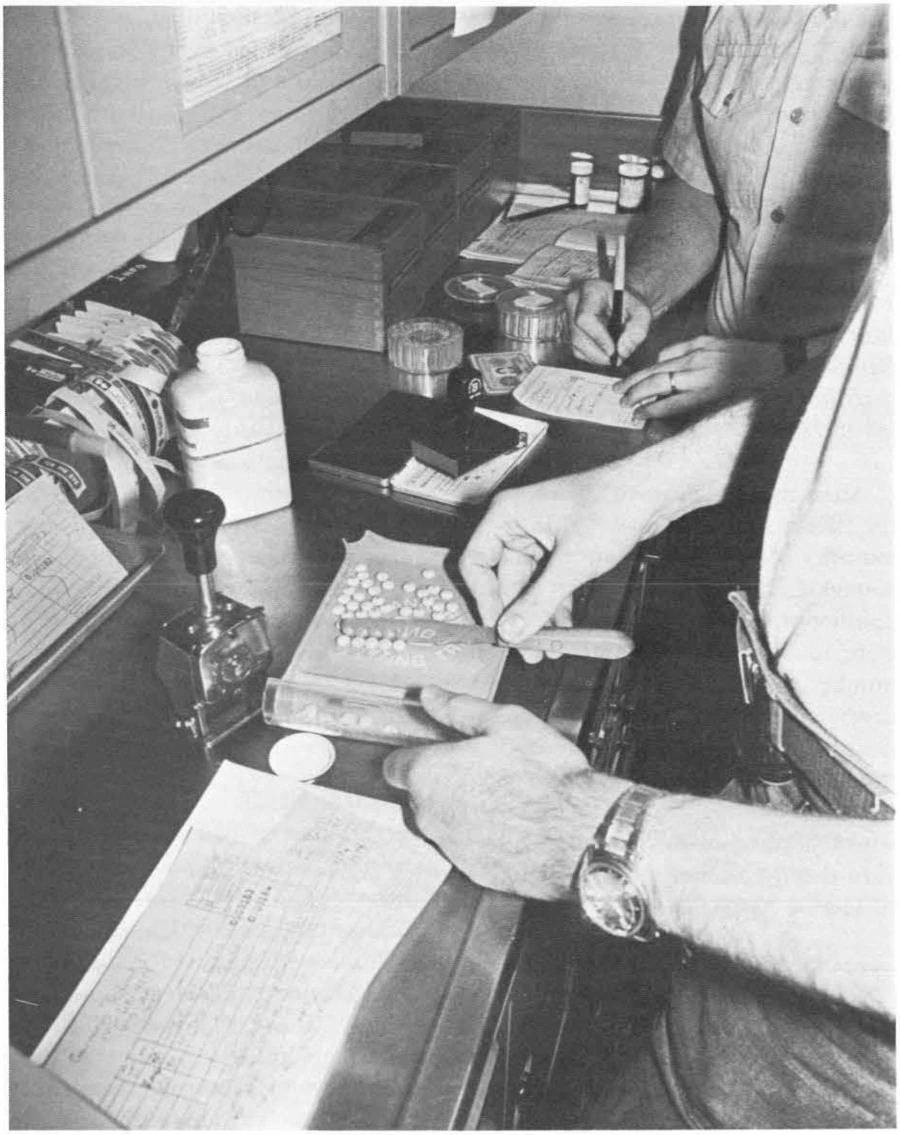
In addition to your pharmacy duties you still have to be an overall corpsman.

Yes. I also have collateral duty on the medical training team. There's a lot to teach the other crewmembers—what's in the first aid boxes scattered throughout the ship and how to use their contents. In a combat situation there just won't be enough corpsmen to go around. In the past several months we've taught on the average of 600 man-hours of first aid.

What kind of person would you recommend for the pharmacy tech rate?

He has to be a goal-setter, someone who likes responsibility and strives to do his job efficiently. Each time he performs a task he must seek to get just a bit closer to perfection.

For upward mobility and career development information concerning the Pharmacy Technician Program (HM-8482) contact HMCM W. Raysick (MEDCOM-5415), Career Planning Branch, Naval Medical Command, Autovon 294-1647, Commercial (202) 653-1647; your career counselor; or the HM "C" School detailer at NMPC, Autovon 224-4547.
—JKH



Hospital Ship SS *Uganda*

At War in the South Atlantic

Surgeon Commander J.M. Beeley, Royal Navy

On 2 April 1982 the British governor of the Falkland Islands surrendered to invading Argentine forces triggering a short but bloody conflict between Britain and Argentina. Responding to the crisis in the Falklands, the Royal Navy dispatched a task force of warships and support vessels to the region. A cruise liner, SS Uganda, *was requisitioned and in short order converted to a hospital ship. On 12 May 1982* Uganda *received her first casualties, victims of HMS* Sheffield *destroyed by an Exocet missile.*

The following article tells Uganda's *story and provides some insight into how the Royal Naval Medical Service handled a national emergency and provided combat casualty care to British forces in the South Atlantic.*

After the Argentinian invasion of the Falkland Islands on 2 April 1982 a majority of Royal Naval medical personnel did not believe that an armed conflict would ensue. Of those who were to be deployed south, a small number sensed an atmosphere of urgency which had never accompanied deployments to Belize and other potential war zones. To watch the Sea Harriers landing on HMS *Hermes* whilst berthed in Portsmouth Dockyard during ammunition storing and to receive *carte blanche* authority to order additions to medical stores and equipment were two disquieting signs. The submersed Plimsoll line of *Hermes* as she sailed with the Task Force on 5 April triggered the mental siren experienced on Dhala convoys during the Aden conflict.

Buses, preceded by a visiting brewer's lorry, left the Royal Naval Hospital, Haslar, on 15 April with Naval Party 1810 bearing medical personnel in a festive mood not fully shared by their close ones; there was a similar scene in RNH Stonehouse. If the true nature of the task ahead had been fully appreciated, hardly a medical manjack would not have wished to be aboard. The P & O school cruise liner SS *Uganda* had been requisitioned five days previously in the Mediterranean and there was some uncertainty about the future deployment to SS *Uganda* and *Canberra* of the bus passengers. In the event, *Uganda* was to sail from Gibraltar on 19 April with the newly titled "Naval Party 1830" as the first British hospital ship since HMHS *Maine* sailed off the Korean coast in the 1950s.

Hospital Staff

Eighty-two Royal Naval medical personnel, drawn almost exclusively from the two UK naval hospitals, comprised the staff which was to man the floating hospital. In addition, 23 Royal Marine bandsmen whose task in war is to act as stretcher bearers, joined the ship; it is ironic that they would so suddenly prove their enormous importance in the event of battle at the very time when their future was threatened by the Defence Review.

With Surgeon Captain A.J. Rintoul RN as Medical Officer-in-Charge, 11 other medical officers were appointed to the ship. They included Consultants in General, Orthopaedic, Burns and Facio-maxillary surgery supported by Consultants in Anaesthetics, Medicine, Psychiatry, Radiology and Pathology. In addition, a small number of critically important junior medical officers were borne. Fourteen nursing officers plus 32 male and 23 female ratings together with two Medical Services officers, carried for administrative and public health duties, completed the party which was to be slightly increased later in the commission.

Voyage South

On 19 April, 60 hours after SS *Uganda* entered Gibraltar, she sailed south with all agog at the break-neck speed with which she had acquired a flight deck, refuelling-at-sea facilities and other structural changes. Oxyacetylene torches burned throughout the night. During the intense dockyard work to convert *Uganda* into a hospital, 90 tons of medical stores were taken on board in Gibraltar. These were shifted, sorted and catalogued by both officers and ratings of Naval Party 1830 in a continued flurry of activity. The allocation of responsibility for the overwhelming tasks of hospital administration, creation of the hospital and preparation for active handling of casualties was often dic-

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tated by trial and error; the standing orders for hospital ships were by now outdated as the UK and many other countries had abandoned the hospital ship concept when planning for future conflicts. During the four week period between departure from Gibraltar and the reception of the first casualties on 12 May, there was continued discussion, reorganisation and rehearsal for an improbable war. In the coming weeks many lessons were to be learned.

Luxury accommodation of the entire complement of Naval Party 1830 in cabins provided an incongruous touch to the emerging adventure. SS *Uganda* had apparently been requisitioned complete with both cabin stewards and a splendid dining facility normally enjoyed by cruise-line passengers. In the subsequent weeks when casualties were on board, many of the medical staff felt some discomfort when comparing their cocoon-like existence with the great hardships experienced by those serving ashore and in the fighting ships; nevertheless, the injured were to benefit greatly from *Uganda*'s ability to provide safety, warmth, good food and relative comfort. The P & O officers and crew would render immense support and assistance in the handling of patients.

After a brief call at Freetown [Sierra Leone] without stepping ashore, *Uganda* reached Ascension Island on 28 April. News of unsuccessful negotiations with the Argentines together with intense sea and air activity amongst a substantial array of ships generated further suspicions that a peaceful voyage was now less likely. Stores were taken on board and flying exercises undertaken. A shopping list of medical personnel was presented by *Canberra* to *Uganda* on the understanding that *Canberra* would be the first line sea-based hospital facility with *Uganda* then destined to sit well outside the total exclusion zone; valuable personnel were transferred only to be returned later. The extremely barren volcanic mountain of Ascension Island, capped with greenery like a limestone dale, provided a dramatic backcloth to the preparation for war.

Uganda departed from Ascension Island on 30 April rehearsing for casualty reception and undertaking a lecture programme designed to cover the management of battle casualties, burns, smoke inhalation and cold injury which were thought to be likely problems. Deprived, under the Red Cross Convention, of direct radio links with other units of the Task Force, official news of the growing conflict was received by the Naval Party 1830 from the BBC World Service broadcasts alone. Privateer radios were held by a few members of the P & O ship's company who received broadcasts from the American continent; these spilled out both Argentinian propaganda claims and N. American news often in advance of the BBC. The latest "buzzes" spread like fire through the ship leading to speculation and demands for a coordinated flow of information which could not be supplied.

The Sting

When HMS *Sheffield* was struck by an Exocet missile on 4 May, *Uganda* was in a position which dictated that she could steam more quickly to receive casualties from the "grey funnel" ships than could the ambulance vessels which were expected to undertake this role. Thus, *Uganda* entered the total exclusion zone on 12 May realising the aspirations of those medical personnel on board who believed that a Red Cross protected ship would provide the safest and most effective hospital facility for those injured in battle. Between 12 May and 14 July, a period of nine weeks, a total of 730 cases were to be treated on board and over 500 of the British patients received by the "mother ship" *Uganda* would be transferred in batches to her "duckling" ambulance ships for evacuation to UK by RAF aircraft from Montevideo. The ingenious adaptation of the three survey ships HMS *Hydra, Hecla* and *Herald* to a medical role had been achieved by a happy blending of Naval expertise and youthful medical enthusiasm.

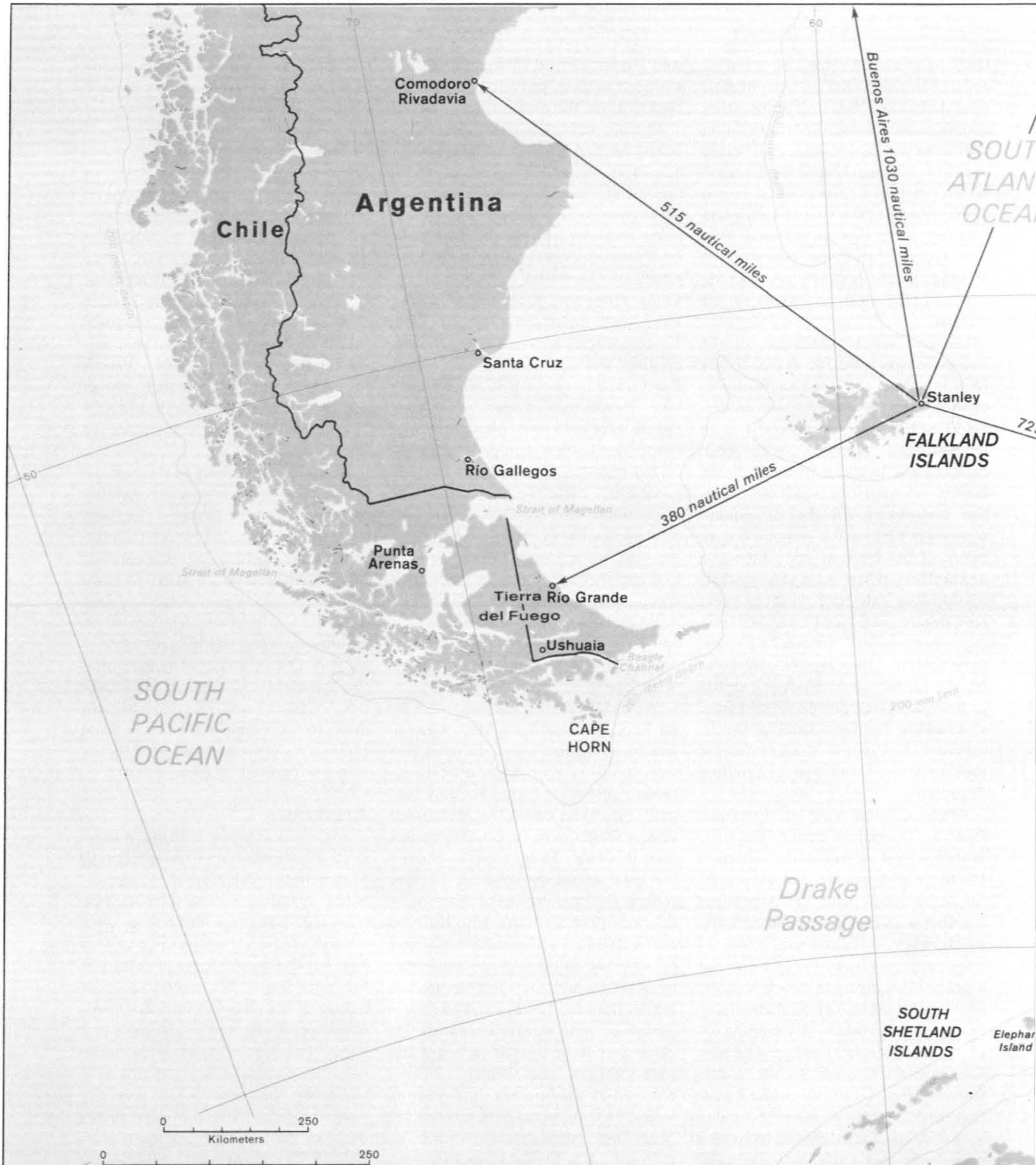
Blood and Water

Freshly donated blood with an expiry date of 11 June had been taken on board at Ascension Island thus preserving the "on hoof" potential for massive donations from the entire Naval and P & O complement of *Uganda* if required. This tactic allowed the subsequent adequate supply of blood to Units ashore and the relative extravagance of a 30 unit transfusion into one patient alone. The cold drinks coolers on board provided an ideal storage temperature for these supplies.

A notable deficiency in the medical armoury of *Uganda* was her inability to produce fresh water. This was miraculously rectified by new technology in the form of reverse-osmosis plants delivered on 15 May. The two wonderful machines, which would have been lauded by the late Heath Robinson, were skillfully assembled by P & O engineers. They grew into the awkward but efficient personalities "Niagara" and "Kariba" to produce an incredible 6000 of the total 11000 tons of fresh water used by the ship during the commission.

Argentines

Arrangements for multiple admissions of patients were first tested on 12 May with the reception of 24 Argentinians including survivors from MV *Narwaal.* Language difficulties were encountered and the security of foreign nations posed some problems in the initial stages. When the Red Cross nature of the ship was fully accepted, suspicions were rapidly allayed and a happy relationship established; some of the shipwrecked Argentinians were to declare the possession of carefully packed ladies' briefs imprinted *Invincible* as their solitary spoils of war. During the coming weeks all seriously wounded Argentine soldiers were to be nursed side-by-side with our own men without incident.



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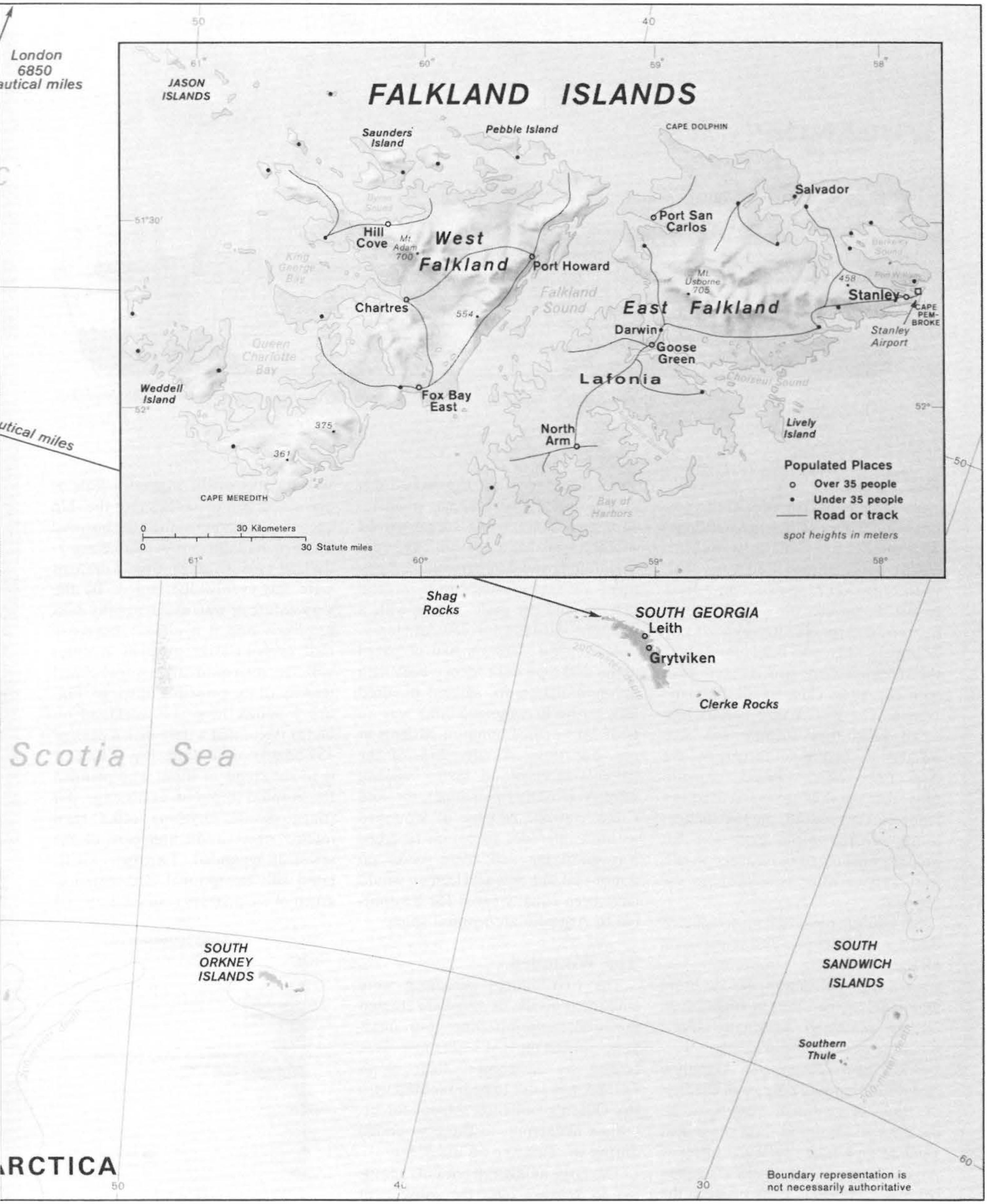
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Port San Carlos
Salvador
Berkeley Sound
Port William
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Mt. Usborne 705
Stanley
CAPE PEMBROKE
Stanley Airport
Falkland Sound
East Falkland
Chartres
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Darwin
Goose Green
Queen Charlotte Bay
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Weddell Island
Fox Bay East
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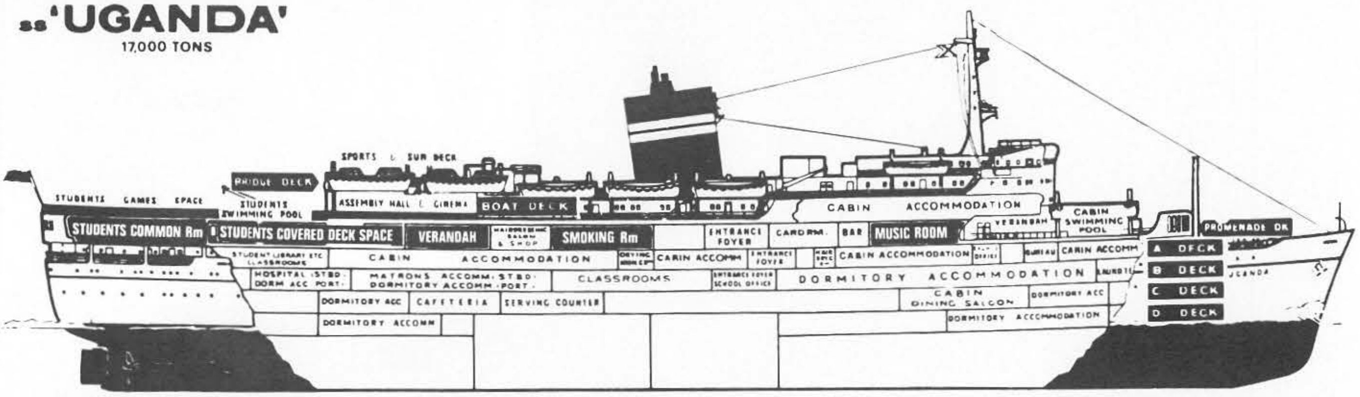

Courtesy of J R Nav Med Serv

The P & O school cruise liner, SS Uganda, *before being converted into a hospital ship.*

Red Cross

SS *Uganda* has been declared a hospital ship before sailing in accordance with the Second Geneva Convention (1949). International Red Cross personnel first joined the ship on 7 June. In the meantime, the ship had been buzzed by Argentinian Skyhawks on 21 and 28 May with heads ducking in the Intensive Care Unit as staff dealt with casualties close to the Falkland Islands. The BBC World Service provided news that *Uganda* was considered a legitimate target by the Argentines which alleged, untruthfully, that the ship was being used as a troop carrier. Indeed, she had meticulously adhered to the regulation that no personnel could be returned to military service after admission to the hospital.

SS *Uganda* possessed no designated Red Cross helicopter and relied upon military aircraft, temporarily extracted from active war roles, to bring wounded to the ship; in flight, such aircraft remained legitimate targets but were never compromised.

ARA *Bahia Paraiso*, an Argentine Antarctic Support Ship, was the first of three Argentinian vessels to be designated a hospital ship; she joined *Uganda* on 4 June to allow transfer of Argentine casualties. Medical personnel made exchange visits between the ships. The Argentine ship carried specialists in surgery, trauma, intensive care and anaesthetics supported by others in medicine, cardiology, ophthalmology and dentistry; the complement was said to comprise 25 medical officers and 50 male nurses with a potential capacity for 250 patients.

In contrast, *Uganda* had prepared about 100 high dependency beds with accommodation for several hundred less seriously wounded and was to treat up to three hundred patients at any one time. Almost 20% of the patients received on board *Uganda* were Argentinian personnel; the Red Cross concept of care of wounded without reference to nation or creed was gratifying and there seems no doubt that our own servicemen would have been equally cared for if admitted to Argentinian hospital ships.

The Wounded

The first injured personnel were embarked on the day *Uganda* entered the total exclusion zone: four survivors, burned on HMS *Sheffield*, were landed by helicopter; their ship's POMA was later to be honoured with the Queen's Gallantry Medal for his selfless dedication to those wounded during the airstrike on *Sheffield*.

The large number of patients admitted to *Uganda* over the subsequent two months might suggest a flow of about a dozen casualties into the ship each day. Complementing the hospital on such assumptions would necessarily lead to difficulties if the workload were less evenly distributed. By the very nature of war, mass casualty days are likely and it is almost inevitable that even massive medical facilities will be intermittently overwhelmed leading to the principle of triage. Figure 1 shows how the workload on board fluctuated wildly with a peak of 159 admissions on one day, 9 June. It is to the credit of those who planned the hospital ship that, at no stage, did triage dictate anything other than intense observation and care of the seriously wounded. Two facts facilitated this exceptional circumstance: much of the primary resuscitation and

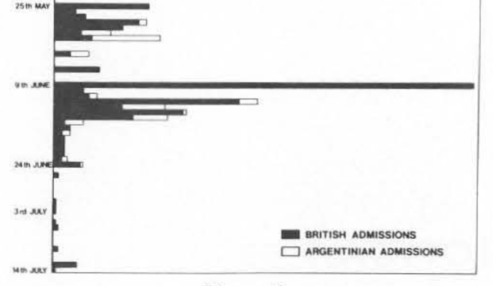

Figure 1

Courtesy of J R Nav Med Serv

Hospital ship SS Uganda *in Grantham Sound*

surgery had been accomplished ashore and, for tactical reasons, casualties arrived almost exclusively in daylight hours. The negligible mortality on board is to be celebrated: only three patients, each with injuries incompatible with survival even in sophisticated medical centres, were to be lost on the ship.

The "Spider's Web"

Between mid-May and departure from the Falkland Islands in mid-July *Uganda* steamed a complex course. She was almost never allowed to anchor overnight in Falkland Sound lest her brightly lit form be used as a beacon for navigation by Argentine aircraft. Her complex movements left some doubt as to whether she would be recognised as a hospital ship by Argentine aircraft and submarines or, indeed, by our own forces. During the height of the battles she sailed almost daily into such areas as Middle Bay and Grantham Sound to await receipt of casualties.

Injuries

Penetrating injuries were, as in other battles, the main cause for admission. They accounted for 270 (46%) of the British patients treated on board and fully stretched the surgical capacity. About five hundred operations were undertaken under anaesthesia and 361 units of blood were transfused.

The anatomical distribution of injuries seen on the ship are compared below with those recently reported amongst Israeli Forces.(*1*) Both patterns are similar to those seen during the Second World War.

	British %	*Israeli %*
Head and Neck	14	13
Chest	4	5
Abdomen	3	7
Extremities	46	40
Burns	19	10
Psychiatric	4	9
Others	10	4

In the Falkland Islands conflict there was a ratio of wounded to killed in action of approximately 2:1 whilst a more favourable ratio of 4:1 has been reported from Israel. Unfortunately, the classifications used by different authors are not comparable.

The figures shown are sufficient to indicate that limb injuries will consume a high proportion of operating theatre time and personnel: on *Uganda* two operating tables were in use for over 12 hours daily for several weeks.

Seventeen patients (3.3%) admitted to the hospital had sustained penetrating brain injury, skull fractures or concussion. Whenever the integrity of the dura had been breached, a combination of penicillin, metronidazole and sulphadimidine was administered as prophylaxis against cerebral abscess. This regimen is believed to have prevented deterioration during the pause of up to two weeks between emergency surgery and elective craniotomy back in the United Kingdom. Metronidazole was also administered to patients with abdominal injuries and to those patients with extensive tissue destruction elsewhere.

Fire

The flight from the inferno of 8 June on *Sir Galahad* ended on *Uganda.* Film has recorded this desperate interlude. The following day, 159 patients came over the hospital ship's flight deck. In bad conditions, wind force 4, an RAF Chinook made the first of two perfect landings on a flight deck not designed for an aircraft of that weight.

All patients were moved within a minute from flight deck to "triage" area. For the most severely burned patients there was rapid onward passage to the Burns Unit sited in the cruise-liner's original hospital. The words "not bloody needle" greeted the Consultant erecting an intravenous line on one of the most badly burned patients.

In all, 112 burn cases were treated on the hospital ship. The care of such numbers precluded strict adherence to the rule of nines regime which had been held in reverence by all disciples of modern medicine. On admission, haematocrits were spun on a portable mini-centrifuge and fluid deficit calculated as:

$$5000 \; \frac{5000 \times 44}{\text{observed Hct}} \; \text{ml.}$$

Within 12 hours intravenous infusion had restored fluid balance in all patients. Nevertheless, the sight of hands weeping into plastic burn bags and heads swollen by "flash" to turnip-shape disquieted medical attendants. The subsequent slow process of grafting and treatment of septicaemia was entirely successful in the battle against mortality.

Cold

Immersion in the sea is a potential hazard to all who serve in ships. Workers in the Royal Naval Medical Service have undertaken extensive research in this field. Shipwreck was a serious threat in the South Atlantic. A hot water bath facility, euphemistically termed the "bird bath," was constructed in the casualty clearing area by the ship's carpenter and sailmaker; it could be filled in five minutes with salt water at a temperature of 43° C. It is fortunate that there was no requirement for its use. Rescue from the sea would have depended upon availability of helicopters. In severe weather conditions the absence of a boom and scrambling net as used on Arctic convoys could have proved a serious deficiency.

In the event, peripheral cold injury incapacitated a significant number of troops ashore and led to 70 (12%) admissions. The majority of cases were non-freezing cold injury to the feet, so called "Trench-foot." No satisfactory treatment schedules have been proved effective in this disorder. Victims are being studied in depth at the Institute of Naval Medicine in an attempt to improve understanding of the physiology and pathology of the damage. In many instances the pattern of injury strongly suggested that some current footwear worn during heavy load carrying needs improving.

The Finale

Surrender of the Argentine land forces took place on 14-15 June thus saving many casualties in a battle for Stanley. Ninety-two children were embarked from the Islands on 10 July for a party organised according to P & O tradition. The last casualties, serious victims of mines and accident, were received by the ship on 13 July; at the same time, the red crosses were being obliterated and the funnel changed to the buff colour of a troop ship ready for embarkation of the Gurkhas for passage to UK. Port Stanley, like a Devon chalet holiday resort in winter, was counting its rosary beads and staring into its crystal ball. *Uganda* sailed north from Fort William on 18 July with the ceaseless footsteps of exercising Gurkhas acting as a metronome as the ship ploughed home.

Home

The 23000 mile voyage ended in Southampton on 9 August. The temporary flight deck had received 1063 helicopter landings. The terms "paraffin pigeon," "Nosh box" and "Tab" had entered the vocabulary of all on board. Rainbows shone in the plumes of water from the welcoming fireboats. A Laurel and Hardy misquote, "That's a fine mess you've got us out of Stanley" read the most pleasing placard addressed to all naval and P & O personnel on board.

Reference

1. Michaeli D: Medicine on the battlefield: A review. *J R Soc Med* 72:370-373, 1979. ☐

New Reserve Programs

The Naval Reserve has launched a new program for officer and enlisted Medical Department specialists which will improve their wartime medical skills and retain and recruit more reservists to these critical specialties.

The concept is to allow physicians and critically needed specialists to drill at other than normal sites and perform annual active duty for training (ACDUTRA) at civilian locations.

These newly authorized drill sites are medical universities and schools where reservists would attend health education activities and acquire other training relating to wartime medical duties.

Participants will continue to receive drill pay and retirement point credit.

The program originated at DOD and applies to all Reserve and National Guard medical departments.

The Chief of Naval Reserve, RADM Robert F. Dunn, authorized implementation of the Medical Individual Mobilization Augmentee (IMA) program. This program allows REDCOM commanders to approve the flexible training for IMA members. These commanders may place their Selected Reserve IMA medical personnel in one of six training categories which will provide a wide array of drilling opportunities.

The Reserve IMA will be assigned to a mobilization billet and train for that billet during peacetime.

A program within the IMA program that has drawn special attention is the Physician Reservist in Medical Universities and Schools (PRIMUS).

This provides for PRIMUS IMA detachments to be set up at medical schools with a mission of recruiting, retention, and training in military medicine of Reserve Medical Department personnel.

The first detachment was established at Georgetown University Medical School, Washington, DC. Other detachments are slated for approximately 20 more medical schools. At these schools, Reserve physicians will have training flexibility not normally found at the typical Reserve drilling site.

Authorized drills could include attendance at an elective course in military medicine, attendance at professional meetings and seminars, unit administration, grand rounds, or medical symposia.

Examples of PRIMUS annual ACDUTRA are operational medicine courses such as combat casualty care, medical effects of nuclear weapons, field medical school, or landing force medical staff planning.

Also available are clinical or administrative duty at Naval Medical Commands, military officer indoctrination, or special projects at senior military commands.

Special ACDUTRA in Continuing Medical Education (CME) is also authorized. IMA participants can earn additional retirement point credit by taking correspondence courses in military and medical subjects.

Further information on the Medical IMA program can be found in CNAVRES Instruction 1570.9.

U.S. Army

Top Three

COL Jack F. Fitzpatrick, MC, USA, Chief, Medicine and Surgery Division, Academy of Health Sciences, Fort Sam Houston, TX, presents diplomas to the three top honor graduates of the Respiratory Therapy Specialists Course at Brooke Army Medical Center. There were nine soldiers and eight sailors in the class. Receiving their diplomas are, from left, distinguished honor graduate HM2 Merrille B. Bennett, and honor graduates HM3 Cynthia M. Maynard and HM3 David L. Tyler.

Drug Evaluations Aboard Fleet Units

LCDR Robert S. Kretchmer, MSC, USN
LT Warren B. Knox, USNR

A recent issue that has attracted much attention in the Navy is the distressing emergence of drug abuse. Since the CNO's awareness of this problem, identification and drug rehabilitation of suspected drug abusers has become a major concern. Without identification and rehabilitation many skilled military men and women will be absent from the work force each year.

Counseling for the motivated substance abuser is available at Navy Counseling and Assistance Centers (CAAC's), and residential treatment is available at the Naval Drug Rehabilitation Center (NDRC), San Diego, for personnel diagnosed as psychologically or physically drug-dependent. After successfully completing the treatment program at NDRC, many formerly drug-dependent sailors have been able to alter previous substance abuse patterns and return to duty to complete their enlistments.

Presently, suspected drug abusers are identified three ways:

- urinalysis screening programs,
- self-referral at various base or shipboard CAAC's, and
- through the aid and intervention of Drug and Alcohol Program Advisors (DAPA's) assigned to various commands.

Another method of identification now under discussion would involve shipboard visits by Navy clinical psychologists to evaluate referrals from the ship's commanding officer. Such visits could result in the genesis of a new, more expedient method of screening self-disclosed or other substance abusers. Also, such visits could reduce lost manpower work hours and save time for identified drug abusers awaiting treatment.

A Pilot Program

During the past 6 months the NDRC's Psychology Department has been assisting several ships berthed at Naval Station, San Diego, in evaluating suspected substance abusers. Because of heavy operating schedules, the ships requested professional clinical assistance from NDRC for their crewmembers and NDRC complied.

One or two clinical psychologists quickly and efficiently completed the drug evaluations by inport visits to the ships. Through short-term TAD a few evaluations were generated during brief underway periods. Some evaluations by NDRC psychologists also allowed local CAAC's to gain an extra measure of professional intervention while simultaneously lending assistance, thereby decreasing heavy CAAC workload.

Personnel were identified as substance abusers by positive indication for drugs through the Navywide urinalysis program. Some of these individuals indicated positive urinalysis for several months duration.

According to the written comments of the ships' commanding officers, the psychologists' presence on board was of considerable benefit to the ships.

Rapid Evaluations. All ships visited noted the rapid evaluation of crewmembers. In several instances suspected substance abusers were evaluated 1 day after positive identification of urinalysis screening. One commanding officer stated: "To have obtained this type of professional assistance through other means would have taken several months." Another ship's commanding officer reported: "The psychologists were able to accomplish in several hours what would have otherwise required weeks of scheduling."

Command Response Regarding Client Disposition. The psychologists' recommendations regarding appropriate treatment expedited the handling of their cases. According to one commanding officer: "Their [the psychologists] recommendations permitted immediate action in resolving patient status and avoided the signifi-

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When this article was written Dr. Kretchmer was Chief Psychologist at the Naval Drug Rehabilitation Center, NAS Miramar, San Diego, CA. He is presently a clinical psychologist at NRMC Long Beach, CA 92088. LT Knox is attached to the Human Resources Section, Naval Training Center, San Diego.

cant number of man hours that would have been consumed negotiating masts, CAAC appointments, and medical evaluations."

Reduction in Lost Man Hours. Since the suspected substance abusers were evaluated on board, there was a minimum of lost worktime. No transportation was required and no time was lost in waiting rooms. These advantages were greatly appreciated by the ships which eliminated a half day of a sailor's worktime. Prior to shipboard visits considerable worktime was lost for previous evaluations.

Person-to-Person Debriefings. Several ships reported the person-to-person debriefing with the commanding or executive officers was highly beneficial. One commanding officer indicated the debriefing was one of the strong points of this program. Such professional evaluation by clinical psychologists followed up with a one-on-one debriefing can easily present the overall picture of substance abuse aboard ship. This debriefing also aided the vessel's commanding officer to understand more profoundly and significantly the onboard evaluation program. Written comments from the ships' commanding officers indicated a desire for more professional help and service to fleet units.

Consultation With Ship Personnel. The opportunity to consult with the suspected substance abusers' immediate supervisor, LPO, division officer, executive and/or commanding officer was considered most useful. This accessibility to senior officers is not available when individuals are evaluated in medical offices and CAAC's. Valuable information regarding the clients' behavior, job performance, mast records, motivation for service, and desired action by the ship is pertinent and relevant when formulated into recommendations for each referral.

Understanding At-Sea Environment. All psychologists got a better understanding of the at-sea environment. This knowledge was seen as vital in determining the future service potential of personnel attached to fleet units. This on-the-job training gleaned useful insight into the otherwise gray areas or nebulous drug environments existing aboard ship. Such firsthand experience also provided new understanding of sea conditions which may help lead to drug abuse if not identified, recognized, and dealt with by professionals.

Establishing High Visibility. Being visible to an organization is one of the three important ingredients for a successful consultation relationship. The psychologists were highly visible on the ships. Providing services and developing a favorable rapport with that organization are two other factors which complement visibility and successful organizational relationships.

Conclusion

Our findings indicate that:

- More such professional clinical consultation should be made available to the fleet.
- Consultation and the quality of screening aboard ship significantly reduces lost man hours.
- Personal debriefing between clinical psychologists and ship commanding and/or executive officers tends to bolster, fortify, and enhance a better two-way understanding of substance abuse, while stimulating the cooperation necessary to resolve drug problems.
- Visibility of Medical Department health professionals (in this instance clinical psychologists) aboard ship strengthens both a relationship of consultation and services provided to the fleet; at the same time such visits give sea-going experience to members of the Navy's mental health profession.

References

1. SECNAVINST 5300.28
2. NAVOP 011/82
3. MILPERSCOMMAN 3420175 □

Correction

The May-June issue of *U.S. Navy Medicine* incorrectly listed LCDR Kathy Steele, NC, co-author of "Heat Illness," as the Director of the Branch Clinic, Parris Island. When the article was written LCDR Steele was senior nurse and director of the heat program of that facility.

Computer-Assisted Refraction for the Fleet

CAPT William Sagan, MSC, USNR-R

Operations aboard an aircraft carrier require job skills and abilities as varied and diverse as any work setting in the Navy. Along with these comes additional physical demands necessary to perform tasks at an appropriate efficiency level. Visual requirements are exceptionally stringent for directors, spotters, and checkers. They are responsible for the movement of aircraft on the hangar deck as well as the flight deck. Their duties include towing and positioning aircraft and operating catapults. Because these and other personnel are often in physical jeopardy, they must be physically qualified to accomplish their tasks with minimum risks; vision should be more than adequate.

The *Manual of the Medical Department* requires that all personnel of certain categories, i.e., "directors, spotters, and checkers," be corrected to 20/20 O.U. and pass standard stereopsis and color vision tests. The Armed Forces Vision Tester (AFVT), along with the Farnesworth Lantern, and the Verhoff Stereopter are the instruments most commonly used to test the above criteria. A qualified aviation medicine technician administers such tests.

Flight deck personnel often number over 1,500 and come from the air department and the embarked air wing. Evaluation is usually accomplished during a routine physical. With the introduction of the tri-annual physical exam procedure and the potential for increases in myopia in young people, a regular vision screening program rotating yearly through all flight deck personnel should be implemented.

Aboard USS *Enterprise* one study initially screened the crew identifying flight deck personnel with vision deficiencies. This was accomplished as previously described with the AFVT and resulted in approximately 120 personnel needing further evaluations.

The Problem

At all naval air facilities ashore and afloat, flight surgeons and aviation medicine personnel are usually available to monitor those officers and others needing further vision evaluation. All flight surgeons have become familiar with the normal vision testing procedures from training courses at the Naval Aerospace Medical Institute, Pensacola. With further experience in refraction procedures these skills should be adequate to evaluate properly and prescribe refractive corrections for most vision problems likely to be encountered with aviation personnel. Often, because of higher medical priorities, this area of concern is delegated to other medical department personnel, such as the aviation medicine technician. They are trained in the use of basic vision testing equipment and have become familiar with the operation of refractors. Their skills can be compared to the civilian optician. They can order and check glasses based on the prescription of a qualified optometrist and fit and properly adjust such spectacles.

Aviation medicine technicians are highly skilled in their specific area of training, but occasionally are called on to perform a "refraction" without the basic ability to use a retinoscope. In the hands of a skilled operator the retinoscope will objectively determine the type of refractive error and the degree of such error. With this information the correction can be confirmed quickly and easily in the refractor to a final lens formula. Without this information and no prior glasses prescription, the subject can be corrected to 20/20 with numerous lens combinations, none of which may be comfortably worn in a spectacle prescription. It is common to find a great number of spectacles ordered but unwearable at medical facilities throughout the world. The lack of a skilled retinoscopist is one very important reason for this problem.

Coincidentally, and following the identification of the need for further vision evaluation, *Enterprise* received

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USS Enterprise *(CVN-65)*

a Reserve optometrist for 2 weeks of active duty. During a meeting with the senior medical officer, the nature and scope of the problem were discussed and the possibility of testing an automatic refractor considered. Automatic refractors, available for the past few years, combine the state of the art in computers with common vision testing techniques, providing an objective determination of the refractive condition of the eye. These instruments give similar information as one would obtain from a retinoscope, but automatically.

In order to determine a lens prescription, it is possible to obtain a final end point refraction by subjectively refining the autorefractor data using established procedures. The computer-derived information is similar to the final lens formula, but sufficient correlation for direct prescribing has not been established. Previous studies clearly describe this correlation, but have not been attempted aboard a ship at sea.

Arrangements were made with Coherent Medical of Palo Alto, CA, to transfer on loan to *Enterprise,* a Dioptron autorefractor, power stand, and a thermal printer. In order to compare the instrument data with the optometric examination data, a blind protocol was developed. Medical Department personnel were instructed in the use of the Dioptron and brought to a level of skill necessary to operate the instrument.

TABLE 1. Dioptron Results Versus Refraction for Spheres

Spheres	Total Eyes 261	Percent	Company Performance Guaranty Percent
Within .25	165	63.2	55
Within .50	218	83.5	80
Within .75	243	93.1	87
Within 1.00	254	97.3	95
Within 1.25	261	100.0	

TABLE 2. Dioptron Results Versus Manifest Refraction for Cylinder

Cylinder	Total Eyes 261	Percent	Company Performance Guaranty Percent
Within .25	186	71.3	70
Within .50	232	88.9	85
Within .75	250	95.8	93
Within 1.00	258	98.9	97
Within 1.25	261	100.0	

TABLE 3. Dioptron Results Versus Manifest Refraction for Axis

Axis	Total Eyes 126	Percent	Company Performance Guaranty Percent
Within 5°	68	54	55
Within 10°	96	76.2	76
Within 15°	108	85.7	90
Within 20°	120	95.2	100

Method

All previously screened personnel were contacted and given eye exam appointments. Upon arrival at the aviation examining room spaces aboard *Enterprise,* the corpsman completed the appropriate information on the testing form and then tested each individual with the Dioptron.

The corpsman numbered and stored the information while the examinee went to the eyelane for conventional testing. Following routine optometric testing the optometrist recommended the indicated procedures, new spectacles, no change, or further testing. At the completion of the 2-week active duty period the Dioptron and the prescription data were compared. During this period 262 eyes were tested in this manner.

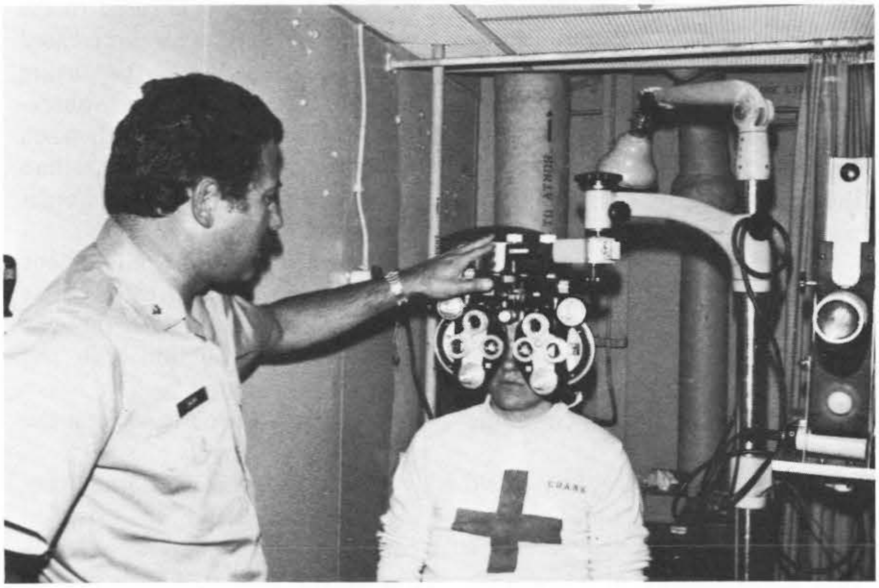
Results

Because of the somewhat unusual test population (all men, mostly under 40 years, and preselected to have little or no physical as well as vision defects), the results may be skewed. Certain vision tests become less accurate subjectively and probably objectively, as the degree of the defect diminishes. However, the test group generally fell within the tolerances claimed by the instrument company in all measurements except for cylinder axis, and there it just about matched expected tolerance. In the category of plus and minus spheres the test procedure surpassed the company tolerance of 55 percent correlation at the +0.25 level and improved to 93.1 percent at the 0.75 sph level (Table 1). The cylinder power relationship also exceeded the guaranty level at the 0.25 diopter level—71.3 percent to 70 percent and continued to improve to 95.8 percent of 93 percent at the 0.75 diopter level (Table 2).

Only in the cylinder axis was there some variability in the guaranty relationship with the axis at the 5° level at 54 percent versus an expected 55 percent and at the 15° level the expected agreement was 90 percent but in fact measured 85.7 percent (Table 3).

When considering the less than typical population cross section found aboard Navy ships, the accuracy of the Dioptron appears to be quite reasonable. Analysis indicates that 63.5 percent of the eyes were in the +/− 0.25 spherical range, while 71.5 percent of the eyes were in 0.25 diopter cylinder range. Powers of this minimum magnitude are difficult to measure by any testing procedure.

Vision testing done on the Dioptron autorefractor



CAPT Sagan performs conventional vision testing.

Conclusion

The availability of a qualified optometry officer to determine the best vision correction for critical crewmembers, especially during periods of deployment, is a luxury not available to Navy shipboard personnel. Some consideration should be given to augmenting medical department staffing with TAD optometrists. It may be entirely feasible to allocate an active duty optometry officer to serve on a rotating schedule those carrier forces deployed on station. Certainly, the critical nature of the duty deserves the best vision care the Medical Department can offer. Further, when vision correction does need to be determined by a flight surgeon or an aviation medicine technician, our analysis of the data indicates that the availability of an autorefractor would greatly assist in providing the appropriate spectacle correction. □

Hospital Corpsmen Memorial

"As I lay on the foot of the slope of Motoyama Airfield Number One, wounded during battle, I looked up to see a marine climbing the slope to get a better shot at the enemy on the other side. He was hit. Immediately, several hospital corpsmen rushed to his aid. Supported by the corpsmen, the marine was evacuated to safer ground."

This memory, deeply etched into the mind of Raul Avina, was the basis for his HM/DT/USMC memorial. For almost 40 years Avina carried the picture of those corpsmen and their heroism in his mind's eye. It was that scene that caused him to change his views of hospital corpsmen, or "Docs" as they are called by the marines in combat.

"We marines used to make some pretty rough jokes about these corpsmen. As a matter of fact, we often held them in contempt because they were not combat men as many thought combat men should be.

"After what I saw, I always held these docs in admiration."

That admiration led Avina, a well known artist of Oceanside, CA, to make his proposal to CAPT L.U. Pulicicchio, MC, Commanding Officer of NRMC Camp Pendleton. Avina had made a pen-and-ink sketch and a plaster scale model of his monument.

The construction of the monument was carefully researched and planned to the finest detail by Avina. He built the memorial at the Mission Patio Supply Center, and recruited the owners, John and Larry Zamora, local sculptors to help him.

The memorial stands 13 feet, 3 inches high and is 10 feet wide. The base is 44 yards of solid concrete.

The statue depicts three figures carrying a fourth to safety. The figures weigh between 300 and 450 pounds and are anchored by 3/4-inch steel supports encased in the concrete. Each figure was recreated in painstaking detail to insure authenticity. Avina used quick-drying stone cement, which when hardened is 50 percent harder than fuel-cured cement. The total weight is over 50 tons.

The idea for the monument honoring hospital corpsmen first came to Avina in 1976. He thought to tie its construction into the Nation's bicentennial.

"But it just wasn't feasible at the time," he explained.

"There were no memorials specifically dedicated to hospital corpsmen and dental technicians and to the vital role they play in combat situations.

"This is a testimony not only to the corpsmen themselves, but also to the unique and close relationship they share with the marines," said CAPT Pulicicchio.

Avina's feelings of admiration toward hospital corpsmen did not dim over the years.

"We (the marines) could take cover, advance, or crawl; in other words, protect ourselves.

"Corpsmen could hardly take cover or conceal themselves, and they provided good targets to the enemy. But, even under devastating enemy fire, Navy corpsmen—hungry, fatigued to the point of no return—carried out their mission of aid and mercy.

"After you've seen the things they do, under the conditions they have to operate, you have to admire them. It burns into your memory, and you never forget it."

The construction of the memorial was sponsored by the John Wayne Chapter of the Non-Commissioned Officers' Association.

Avina's memory has been transformed into a work of art. More than that, it serves as a living testimony to the service and sacrifice made by those who, without regard to personal safety, never failed to perform their duty.

The statue was donated to NRMC Camp Pendleton for permanent display. It was dedicated on 17 June 1983 as part of the medical center's celebration of the 85th birthday of the Hospital Corps.

—Anita L. McWilliams

Plaster scale model of monument.

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